S/133/62/000/003/001/008
A054/A127

Refining converter steel with...

high degree of desulfuration. When cast irons are processed with a high (0.085 - 0.095%) sulfur content, this could be reduced to 0.030 - 0.042% during blowing and to 0.009 - 0.013% after slag treatment. Desulfuration is most effective in the U10-U13A (U10-U13A) grades (up to 72.8%), in axle steel (71.9%) and ShKh15 steel grade (67.8%). The final phosphorus content of steel can also be reduced to 0.020 - 0.030% by slag treatment, even if made of cast iron containing 0.22% phosphorus. The synthetic slag method reduces the content of oxygen and non-metallic inclusions (sulfides, oxides) of the steel. Converter structural steel grades, refined by synthetic slag, have a greater ductility and notch toughness (mainly across the fibre), than conventional converter, open-hearth and electric steels. Most probably, the ductility is improved by the effect of the synthetic slag emulsion on the metal which reduces the sulfur content and non-metallic inclusions; a sub-microscopic silicium-oxygen phase may also have some effect. Slag-refined converter axle steels displayed a high ductility at -20°, -40° and -60°C, the new refining method imparts the 06N3 cold-resistant converter steel at 150 - 183°C the same degree of frost-resistance as found in electric steels. The tests were carried out with A. N. Korneyenkov, G. V. Gurskiy, Ya. M. Bokshitskiy, A. K. Petrov, Ye. D. Mokhir, R. I. Kolyasnikova, G. A. Khasin, V. P. Danilin,

Card 4/5

S/133/62/000/003/001/008
A054/A127

Refining converter steel with...

P. S. Plekhanov, A. I. Mazun, and A. A. Markin participating. There are 3 figures, 9 tables and 2 Soviet-bloc references.

Card 5/5

MOKHIR, Ye.D.; CHEKHOMOV, O.M.

Composition of nonmetallic inclusions in converter steel treated by liquid synthetic slag. Stal' 22 no.7:640-643 Jl '62. (MIRA 15:7)

(Steel—Inclusions)

8 71

GEL'PERIN, N. I.; PEHALK, V. L.; YURCHENKO, L. D.; ASHKIS, M. G.; BARANOVA, Z. F.; SHASHKOVA, M. N.; CHICHERINA, T. G.; ZAKHSHLYAYEV, V. G.; CHERNOBAY, Yu. K.; KUZNETSOVA, M. I.

"Investigations in the field of the technique of liquid extraction."

report submitted for 2nd All-Union Conf on Heat & Mass Transfer, Minsk, 4-12 May 1964.

Moscow Inst of Light Chemical Technology.

GEL'PERIN, N.I.; PEBALK, V.L.; CHEKHOMOV, Yu.K.

Columnar mixing and settling extractor with vibratory perforated plates. Khim. prom. 41 no.1:37-41 Ja '65.

(MIRA 18:3)

SHANIN, S.A.; BALABAY, F.I.; KONONENKO, D.F.; MIKULIN, G.I. [Mykulin, H.I.]; BOROVSKAYA, N.V. [Borovs'ka, N.V.]; SHINKEVICH, A.P. [Shynkevych, A.P.]; LIBERZON, L.M.; AMELIN, A.G. [Amelin, A.H.]; BURYAK, K.A.; PECHONKIN, V.V. [Piechonkin, V.V.]; YATSENKO, N.N.; GAL'PERIN, N.I. [Hal'perin, N.I.]; PEBALK, V.L.; CHEKHOMOV, Yu.K.

Inventions and improvements; certificates of inventions. Khim.prom. [Ukr.] no.2:62-64 Ap-Je '65. (MIRA 18:6)

USSR / Meadow Cultivation

Abs Jour: Ref Zhur-Biol., Vol 13, 1958, 58457

Author : Ovchinnikova, E. A., Chekhonina, M. V.

Inst : Petrozavodsk University

Title : Hay Meadows and Pastures of the "Konchezerskiy" Sovkhez of Petrovskiy Rayon and Means of Their Improvement

Orig Pub: Uch. zap. Petrozavodskogo un-ta, 1956 (1957), 7, No 3, 31-43

Abstract: The results of experiments conducted at the University of Petrozavodsk on the fertilization of dry gap pastures and hay meadows with grain grass-clover in addition to diverse mixed grasses are given. The fertilization consisted of wuperphos-

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CHEKHONINA, N. S.

SAPOZHNIKOV, D.I.; LOPATKIN, Yu.B.; CHEKHONINA, N.S.

Index of the relationship of light and dark reactions of photosynthesis. Trudy Bot.inst. Ser.4 no.9:118-122 '53. (MLRA 6:6)

1. Botanicheskiy institut imeni V.L. Komarova akademii nauk SSSR. (Photosynthesis)

28(2) SOV/115-59-3-2/29

AUTHOR: Chekhonadskiy, N.A.

TITLE: The Possibility of a General Approach to the Analysis of Static and Dynamic Errors (O vozmozhnosti obshchego podkhoda k analizu staticheskikh i dinamicheskikh pogreshnostey)

PERIODICAL: Izmeritel'naya tekhnika, 1959, Nr 3, pp 2-4 (USSR)

ABSTRACT: As is generally known, the results of any measurements are obtained with some errors which may be divided into static and dynamic errors. In accordance with the presently accepted terminology, dynamic errors are those which are caused by distortions of the magnitudes to be measured within the instrument. The dynamic errors are determined mathematically and experimentally. However, the investigation of static and dynamic errors is presently conducted by very different methods and consequently, in a number of cases, the consideration of problems of statics and dynamics is not sufficiently combined. Therefore, the author discusses the theoretical ap-

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The Possibility of a General Approach to the Analysis of Static and Dynamic Errors

proach to the analysis of static and dynamic errors of measuring instruments. First he presents general expressions for the output magnitude and for the static and dynamic errors of a measuring device. Then he gives analysis of the static and dynamic errors of measurements. The author comes to the conclusion that the regularities taking place when performing measurements under static and dynamic conditions may be explained by common relations. As a result of applying the expressions obtained for the analysis of dynamic errors, it may be established that the dynamic error to be determined by an experimental method is according to its meaning a systematic error of the device under dynamic conditions. The results of measurements performed with an instrument under a static as well as under

The Possibility of a General Approach to the Analysis of Static and Dynamic Errors

a dynamic condition may be expressed in expressions of the same type containing the basic characteristics of the device for these conditions. There are 6 Soviet references.

SOV/119-59-3-5/15

8(2), 9(6)
AUTHOR: Chekhonadskiy, N. A., Engineer

TITLE: On the Problem of Estimating the Influence Exercised by Random External Disturbances Upon Instrument Error (K voprosu otsenki vliyaniya sluchaynykh vneshnikh vozmushcheniy na pogreshnosti izmeritel'nykh priborov)

PERIODICAL: Priborostroyeniye, 1959, Nr 3, pp 14-15 (USSR)

ABSTRACT: The estimation of the static measuring errors occurring under the simultaneous influence of several external disturbances upon an instrument proves to be of great interest, as such conditions are often found in practice. Little effort has hitherto been made to investigate this problem, and the author of this paper therefore gives some considerations of it. In the first section the author derives a general expression specifying the total error of the instrument as well as equations for the mathematical expectation and the dispersion of the error. In the second section the author discusses the application of the aforementioned expressions and presents a numerical example. In the paper under review the following conclusions are drawn: 1) The determination of the total error under the action of several disturbances upon a measuring

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On the Problem of Estimating the Influence Exercised by Random External Disturbances Upon Instrument Error

instrument can be considerably simplified, if the errors occurring due to the action of these disturbances are known in detail. 2) In the analysis of these errors each is considered to consist of two components, a systematic one and a random component. 3) Two of the equations derived in this paper specifying the total error of measurement under the simultaneous action of several external disturbances upon the measuring instrument permit to compensate for the total error. The compensation is based upon the following circumstance : The occurrence of a certain additional external disturbance besides the existing disturbances may result in a reduction of the total error of the instrument. This circumstance is verified in practice. There are 3 Soviet references.

L 63245-65 EEC-4/EED-2/EWG(c)/EWG(j)/EWG(r)/EEC(k)-2/EWG(v)/EWT(d)/EWT(1)/FS(v)-3/
EWA(d)/FSS-2 Pe-5/Pg-4/Pi-4/Pk-4/Pl-4/Po-4/Pq-4/Pac-4/Pae-2 TT/RD/GW/GS
ACCESSION NR: AT5013041 UR/0000/64/002/000/0100/0105

AUTHOR: Bayevskiy, R. M. (Moscow); Voskresenskiy, A. D. (Moscow); Gazenko, O. G. (Moscow); Yegorov, A. D. (Moscow); Chekhonadskiy, N. A. (Moscow); Yazdovskiy, V. I. (Moscow)

TITLE: Measuring information systems in cosmic biology

SOURCE: Vsesoyuznaya konferentsiya po avtomaticheskomu kontrolyu i metodam elektricheskikh izmereniy. 4th, Novosibirsk, 1962. Avtomaticheskiy kontrol' i metody elektricheskikh izmereniy; trudy konferentsiy, t. 2: Teoriya izmeritel'nykh informatsionnykh sistem. Sistemy avtomaticheskogo kontrolya. Elektricheskiye izmereniya neelektricheskikh velichin (Automatic control and electrical measuring techniques; transactions of the conference, v. 2: Theory of information measurement systems. Automatic control systems. Electrical measurements of nonelectrical quantities). Novosibirsk, Redizdat Sib. otd. AN SSSR, 1964, 100-105

TOPIC TAGS: cosmic biology, information system

ABSTRACT: A general state-of-the-art discussion and a review based on six 1956-61 Soviet and ten 1959-62 American sources are presented. Two types —

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L 63245-65

ACCESSION NR: AT5013041

research and monitoring — of measuring information systems have been used in cosmic biology. Block diagrams of telemetering biological data under laboratory and actual flight conditions are shown. Automatic data-processing systems are used for quick diagnosing of man's condition and situations. The effect of weightlessness on the autocorrelation function of G. S. Titov's pulse frequency is shown. Ways for using mathematical simulation of bio processes are figured out. The problems of reliability of equipment are discussed, as well as the "small telemetry" (between the astronaut and his ship-borne equipment). Orig. art. has: 4 figures.

ASSOCIATION: none

SUBMITTED: 17Nov64 ENCL: 00 SUB CODE: LS, SV

NO REF SOV: 006 OTHER: 010

Vostok 2

Card 2/2

ACCESSION NR: AT4037708 S/2865/64/003/000/0389/0395

AUTHOR: Yegorov, A. D.; Chekhonadskiy, N. A.

TITLE: Certain problems of applying the theory of random functions in space biology and space medicine

SOURCE: AN SSSR. Otdeleniye biologicheskikh nauk. Problemy* kosmicheskoy biologii, v. 3, 1964, 389-395

TOPIC TAGS: space medicine, mathematics, acceleration, dog, pulse rate, statistics, random function

ABSTRACT: It is indicated that the fundamental physiological indices characterizing the vital activity of an organism are always analyzed as random functions of time or of external actions. For the analysis of such functions the general theory of random functions developed by A. N. Kolmogorov, A. Ya. Khinchin, L. A. Pugachev and others is applied, and for the mathematical processing of random functions probability-statistical methods are used. The essence of these methods consists in determining the following statistical characteristics: the mathematical expectation, the variance, and the correlation function. The concrete form of a random function obtained as the result of a given experiment is called its realization.

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ACCESSION NR: AT4037708

Determination of statistical characteristics follows from the statistical process- of a series of realizations of random functions by means of known formulas. To clarify the problem, two sets of random functions, the first one of which describes the pulse rate of 19 dogs under the action of linear acceleration and the second describes the pulse rate of a human at rest, are analyzed. The first set of random functions represents nonstationary random functions and the second set, stationary random functions. The methods for determining the statistical character- istics of these physiological indices and their peculiarities are analyzed, and a physiological interpretation of the statistical characteristics is given. By comparing the statistical characteristics mentioned above for various intervals of flight, it is possible to determine how an organism reacts to the action of various factors. The author concluded that experimental data in space biology and space medicine must be processed with the aid of methods of theory of random functions.

ASSOCIATION: none

Card 2/3

ACCESSION NR: AP4034554 S/0020/64/155/005/1233/1236

AUTHOR: Gazenko, O. G.; Yegorov, B. B.; Razumeyev, A. N.; Chekhonadskiy, N. A.

TITLE: Changes in neuron rhythm of the reticular formation during transverse accelerations

SOURCE: AN SSSR. Doklady*, v. 155, no. 5, 1964, 1233-1236

TOPIC TAGS: neuron, reticular formation, electroencephalography, neuron potential, physiological stress, centrifuge

ABSTRACT: The effect of overload on the higher brain centers has assumed importance in connection with space flights. Changes in the electroencephalogram upon accelerations may be caused by a number of factors: hypoxia, decreased circulation, increased influx of impulses over the efferent system, etc. Their influence on the reticular system, the integration center of efferent impulses, was studied in 7 cats, involving 100 neurons. The neuron potential was mea-

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ACCESSION NR: AP4034554

sured with electrodes implanted in the neurons. The 3—5 G overload was created by means of a centrifuge provided with an alternating current amplifier, so that the signal reaching the centrifuge was of the order of 30 v. After termination of the experiment the brain was removed and the electrode location verified. Test conditions are described. Results showed that acceleration changed the activity of the various neurons by stages, the initial being a rhythmic repeat impulse, followed by grouped impulses and finally by complete impulse absence (quiet phase). The changes are apparently caused by the effect of the current impulses reaching the giant cell nucleus of the reticular formation over the afferent system. The influence of acceleration may be imagined as the summary result of 2 processes developing simultaneously in the neurons. The first process will lead to quantitative increase of impulses, the second to their decrease. However, development of the second process lags behind the first. At this stage hypoxia does not seem to play any role. The results are figured and formulas presented for calculating neuron activity during the various phases. Orig. art. has: 3 figures and 4 formulas.

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ACCESSION NR: AP4034554

ASSOCIATION: None

SUBMITTED: 09Sep63 ATD PRESS: ENCL: 00

SUB CODE: LS, PH NO REF SOV: 005 OTHER: 003

Card 3/3

GAZENKO, O.G. (Moskva); CHEKHONADSKIY, N.A. (Moskva)

Perception of some mechanical values peculiar to the organism of an animal. Avtometriia no.2:11-17 '65. (MIRA 18:9)

L 24351-66 EWT(d)/EWT(l)/EEC(k)-2 RD

ACC NR: AT6003854 SOURCE CODE: UR/2865/65/004/000/0196/0205

41
B+1

AUTHOR: Chekhonadskiy, N. A.

ORG: Department of Biological Sciences. Academy of Sciences USSR (AN SSSR. Otdeleniye biologicheskikh nauk)

TITLE: Cybernetics and cosmic biology

SOURCE: AN SSSR. Otdeleniye biologicheskikh nauk. Problemy kosmicheskoy biologii, v. 4, 1965, 196-205

TOPIC TAGS: astrobiology, biotelemetry, mathematic model, statistic analysis

9

ABSTRACT: In cosmic biology the experimental data telemetered in the form of quantitative characteristics can be analyzed in many ways, including the methods of the exact sciences. One of these is the cybernetic method, which represents a broader approach to the problem under investigation in that it attempts to find similarities between the biological phenomena and mechanical control systems. In the present study three methods of cybernetic analysis are examined with examples illustrating each: mathematic simulation, biological control, and statistical dynamics. Orig. art. has: none.

SUB CODE: 06, 12/ SUBM DATE: none/ ORIG REF: 018/ OTH REF: 001

Card 1/1

L 64068-65 EEO-2/EWG(j)/FSS-2/EWG(r)/EWT(l)/FS(v)-3/EEC(k)-2/EWG(v)/EWA(d)/EWG(e)
TT/DD/RD

ACCESSION NR: AP5017761 UR/0216/65/000/004/0491/0499
629.195.2:612.1:612.2

AUTHOR: Vasil'yev, P. V.; Voskresenskiy, A. D.; Kas'yan, I. I.; Maksimov, D. G.; Pestov, I. D.; Chekhonadskiy, N. A.

TITLE: Reaction of the cardiovascular and respiratory systems of cosmonauts to orbital flight in Voskhod-1

SOURCE: AN SSSR. Izvestiya. Seriya biologicheskaya, no. 4, 1965, 491-499

TOPIC TAGS: space physiology, cardiovascular system, cardiology, respiratory system, manned space flight, astronaut

ABSTRACT: Under normal conditions there is a close relationship between cardiovascular and respiratory reactions. Consequently, it was desirable to study changes in EKG and seismocardiogram (SKG) indices relative to changes in the time characteristics of pneumograms during the Voskhod-1 flight. The results of these investigations are given in the following figures:

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ACCESSION NR: AP5017761

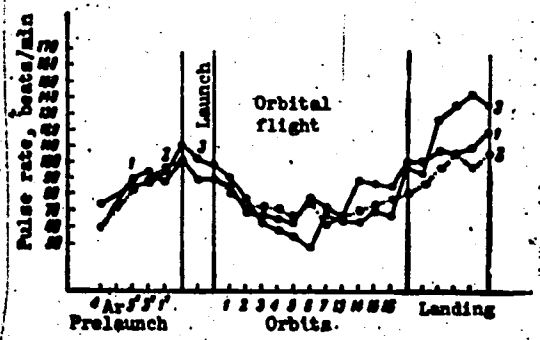

Fig. 1. Dynamics of mean pulse rate values of the cosmonauts during various periods

1 - V. M. Komarov; 2 - K. P. Feoktistov; 3 - B. B. Yegorov.

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L 64068-65

ACCESSION NR: AP5017761

Table 1. Dynamics of the respiration rates of cosmonauts prior to and during the flight (mean values, cycles/min)

Cosmonauts	Day before flight	Prelaunch		Launch	Orbits					Landing
		4 hr before	5 min before		1st	3rd	6th	13th	16th	
V.M. Komarov	10	18	23	18.8	16.8	19.1	21.8	17.1	18.2	20.1
K.P. Feoktistov	18	21	20	24.3	19.4	18.4	19.3	15.5	15.0	17.4
B.B. Yegorov	14	18	27	33.5	26.8	23.1	18.9	20.4	20.4	25.2

The data showed that pulse and respiratory dynamics, as well as electrocardiogram and seismocardiogram indices, had some individual peculiarities but generally did not differ from analogous preflight data. This indicated that there was no real cardiovascular or respiratory disruption as a result of the

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ACCESSION NR: AP5017761

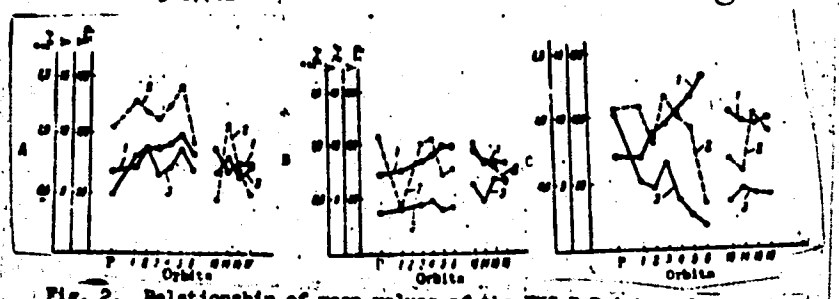

Fig. 2. Relationship of mean values of the EKG R-R interval, coefficients of variation R-R, and respiratory pauses (rp) during various flight periods

A - V. M. Komarov, B - K. P. Feoktistov, C - B. B. Yegorov; 1 - mean value of the EKG R-R interval (X_{R-R}, sec); 2 - coefficient of R-R variation (V_{R-R}, %); 3 - coefficient of respiratory pause variation (V_{rp}, %). P - Prelaunch.

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ACCESSION NR: AP5017761

Table 2. Relationship of cosmonaut pneumogram time characteristics during the flight

Cosmonauts	Index	Orbital periods of measurement: P	1	2	3	4	5	6	13	14	15	16
V. M. Komarov	Inhale t	1.07	1.07	1.12	1.11	1.18	1.20	1.12	1.18	1.08	1.18	1.18
	V_t	34.7	30.7	19.1	23.2	28.5	30.5	27.1	16.5	42.3	30.1	28.6
	Exhale t	0.82	0.88	1.08	1.20	1.44	1.54	1.37	0.88	1.30	1.48	1.32
	V_t	28.7	23.0	28.7	43.6	40.8	25.3	22.1	27.5	28.3	41.9	27.5
	Pause t	1.42	3.17	1.74	1.71	1.84	2.48	0.98	1.20	1.27	1.12	1.30
	V_t	68.4	51.8	57.1	66.0	72.6	88.9	88.9	67.1	79.6	63.3	71.7
K. P. Feoktistov	Inhale t	1.04	0.83	—	0.84	0.84	0.88	0.82	0.82	0.78	0.78	0.74
	V_t	30.1	33.7	—	22.0	34.3	19.6	21.4	41.7	25.1	34.8	22.3

Tabe Table 2 continued on Card 6/8

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ACCESSION NR: AP5017761

Continuation of Table 2 from Card 5/8

B. B. Yegorov	Exhale $\hat{x}$	0.81	0.80	—	0.84	0.81	0.87	0.78	1.10	0.87	0.81	0.87
	V_1	16.1	31.3	—	24.0	31.2	33.3	28.7	33.7	36.2	28.6	19.9
	Pause $\hat{x}$	0.88	1.25	—	1.88	1.88	1.13	1.56	2.54	1.80	2.14	2.20
	V_1	36.3	38.8	—	43.2	48.2	38.3	40.0	61.1	48.9	68.2	64.1
	Inhale $\hat{x}$	0.68	0.70	0.83	0.79	0.94	0.96	1.30	1.18	1.06	1.00	1.03
	V_1	27.3	23.2	18.2	18.1	16.4	18.4	3.3	12.7	14.4	18.2	12.3
	Exhale $\hat{x}$	0.82	0.88	1.08	0.88	1.04	1.25	1.34	1.17	1.18	1.25	1.18
	V_1	18.7	19.9	27.3	22.4	11.7	19.4	7.2	11.3	19.8	21.0	15.9
	Pause $\hat{x}$	0.78	0.72	0.57	1.00	0.77	0.88	1.09	0.87	0.77	0.79	0.79
	V_1	101.8	87.1	45.8	63.9	28.3	29.6	16.8	34.8	43.5	39.8	38.3

P - Prelaunch, $\hat{x}$ - mean value, sec, V_1 - variation coefficient, %

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L 64068-65

ACCESSION NR: AP5017761

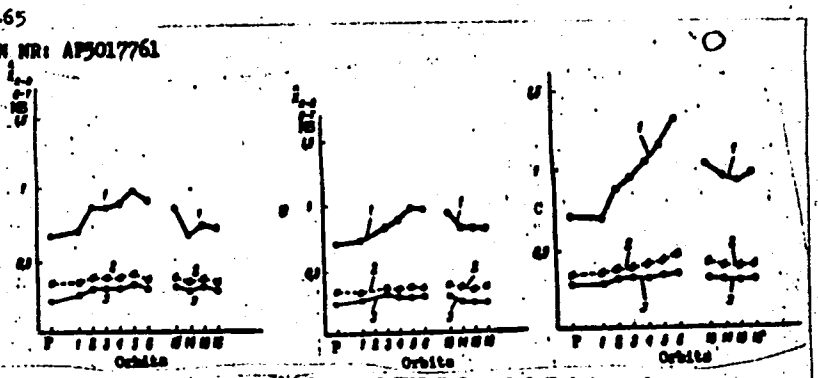

Fig. 3. Relationship of the mean values of EKG R-R and Q-T intervals and the duration of mechanical systole (ms) of cosmonauts during various space-flight periods

A - V. M. Komarov, B - K. P. Feoktistov, C - B. B. Yegorov; 1 - mean R-R value, sec; 2 - mean Q-T value, sec; 3 - mean ms value, sec. P - Prelaunch.

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L 64068-65
ACCESSION NR: AP5017761

flight. It was noted, however, that B. B. Yegorov, the flight physician, exhibited a marked vagotonic reaction while sleeping during the 6th orbit of Vostkhod-1. His pulse rate decreased to 45— 48 beats/min.

As a rule, EKG R-R coefficient variations coincided with respiratory pauses in time and tendencies from one orbit to the next. The lowest R-R lability was exhibited by B. B. Yegorov during sleep.

It was concluded that pulse lability and time characteristics of the respiratory cycle can reflect changes in the general condition of cosmonauts when they are adapting to orbital flight. In particular, these parameters reflect the adaptation of the statokinetic analyzer to weightlessness. Orig. art. has: 2 tables, 7 graphs.

ASSOCIATION: none

SUBMITTED: 05Mar65 ENCL: 00 SUB CODE: LS, SV

NR REF SOV: 011 OTHER: 001 ATD Press: 4068-F

MLR

Card 3/3

L 14301-66 EWT(1)/FS(v)-3 SCTB DD/RD

ACC NR: AT6003890 SOURCE CODE: UR/2865/65/004/000/0543/0554

AUTHOR: Gazenko, O. G. (Doctor of biological sciences); Chekhonadskiy, N. A.; Razumeyev, A. N.; Yegorov, B. B. 62 B+1

ORG: none

2,44

TITLE: Elementary model of the vestibular apparatus

SOURCE: AN SSSR. Otdeleniye biologicheskikh nauk. Problemy kosmicheskoy biologii, v. 4, 1965, 543-554

TOPIC TAGS: spacecraft capsule, human sense, audition, acceleration, central nervous system, neuron, space medicine equipment

ABSTRACT: The vestibular analyzer plays an important role in spatial orientation and can be schematically divided into two sections; receptors which perceive the physical factor, and the central section which coordinates receptor information with various nervous-system formations. The purpose of this investigation was to develop an elementary model of the vestibular apparatus in the interest of elucidating some functional features of this organ under conditions of a variable gravitational field.

1. Characteristics of receptors of the otolithic section of the vestibular apparatus

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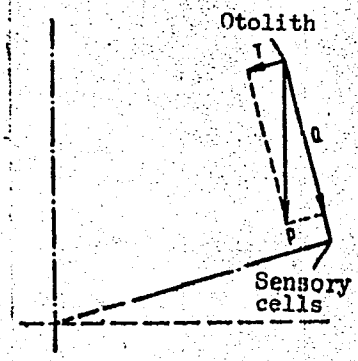

Fig. 1. Principles of a receptor

P - weight of otolith, Q - weight force directed along the afferent fiber, T - force component acting across the afferent fiber.

Figure 1 schematically represents the function of otolithic receptors.

The hypothesis is presented that the receptor reacts to the angle of head inclination relative to the vertical axis when changes in the magnitude of weight component forces of the otolith take place along or across an afferent fiber. The transformers of these changes in magnitude into impulse frequencies are sensory cells. Thus, the receptor will react both to the angle of head inclination and to acceleration forces which take place when the orga-

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ACC NR: AT6003890

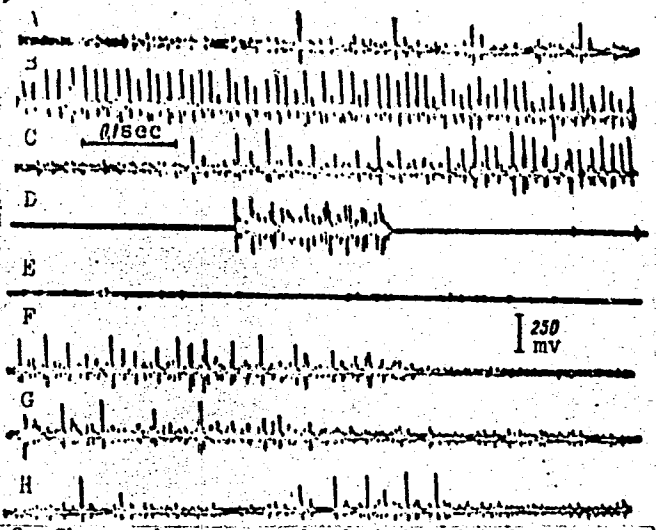

Fig. 2 Change in neuron rhythmicity in the giant cell nucleus of the reticular formation of a cat during 5-G acceleration.
A - Originial rhythmicity; B - activity for 35 sec of rotation (15-sec sample); C - 75 sec of rotation; D - 90 sec; E - 120—150 sec; F - termination of rotation; G - 20—50 sec later; H - 150 sec later.

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L 14301-66

ACC NR: AT6003890

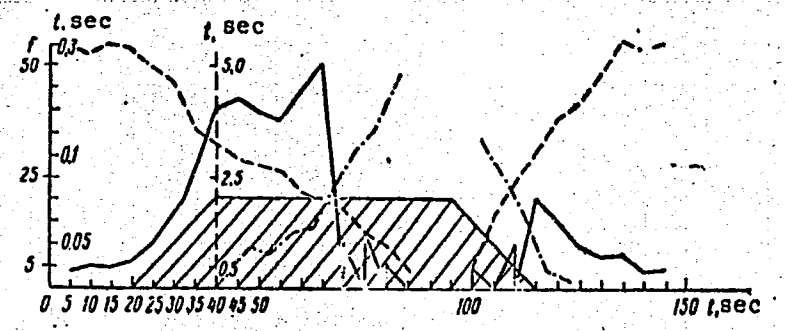

Fig. 3. Averaged results of changes in neuron rhythmicity in the giant cell nucleus of the reticular formation during 5-G acceleration

1 - Acceleration, 2 - impulse frequency, 3 - intervals between impulses, 4 - intervals between groups of impulses.

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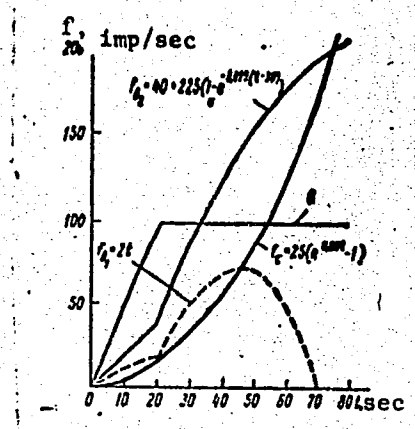

Fig. 4. Graphic representation of processes arising in a neuron during acceleration.

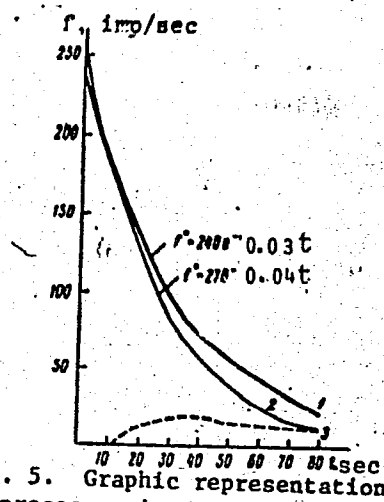

Fig. 5. Graphic representation of processes in separate neurons of the reticular formation after the termination of acceleration. 1 - Impulse frequency in the process of neuron excitation; 2 - impulse frequency in the process of neuron inhibiton; 3 - aggregate curve of neuron impulse frequency.

L 14301-66

ACC NR: AT6003890

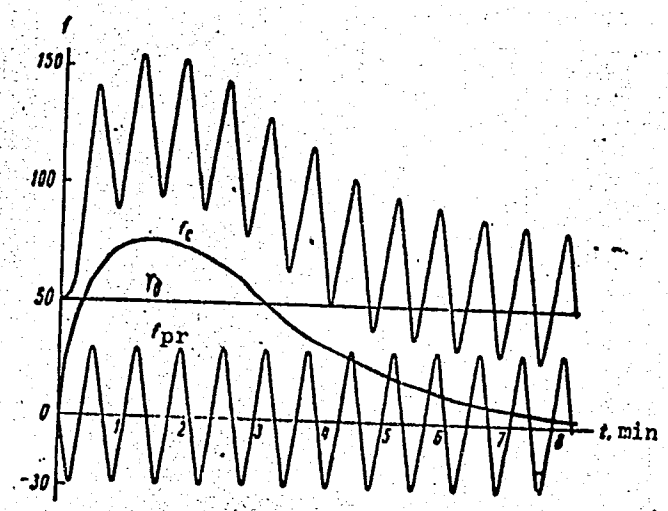

Fig. 6. Dependence of impulse frequencies in the proposed model, a rough analog to a biological system exposed to varying accelerations

f_o - Stable component, f_{pr} - forced component, f_c - free component.

Card 6/12

L 14301-66
ACC NR: AT6003890

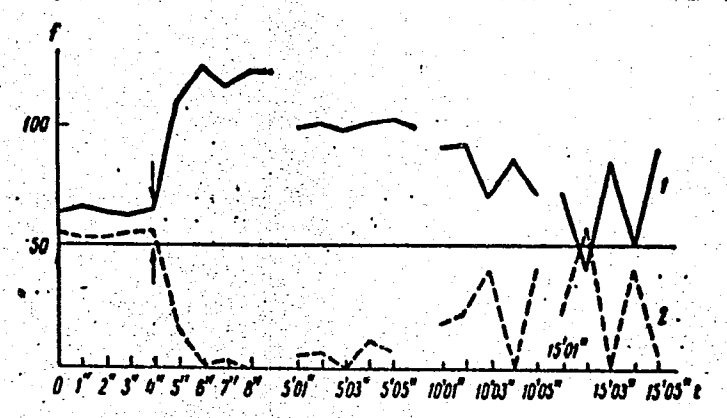

Fig. 7. Changes in the rhythmic activity of neurons during prolonged stimulation of the otolithic apparatus

1 - Network no. 1; 2 - network no. 2, Vertical axis - no. of impulses/sec; horizontal axis - time of the effects of periodic force.

Card 7/12

L 14301-66

ACC NR: AT6003890

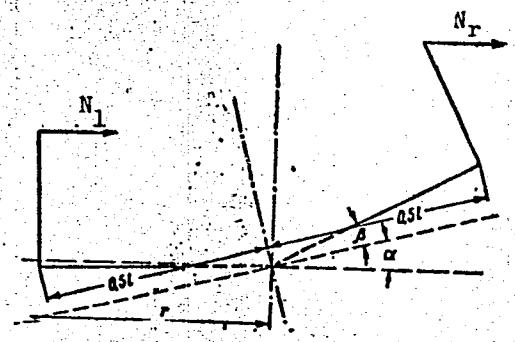

Fig. 8. N_1, Nr - Centrifugal forces acting on the left and right otolith

r - Turning radius; l - space between left and right otolith.

Card 8/12

L 14301-66
ACC NR: AT6003890

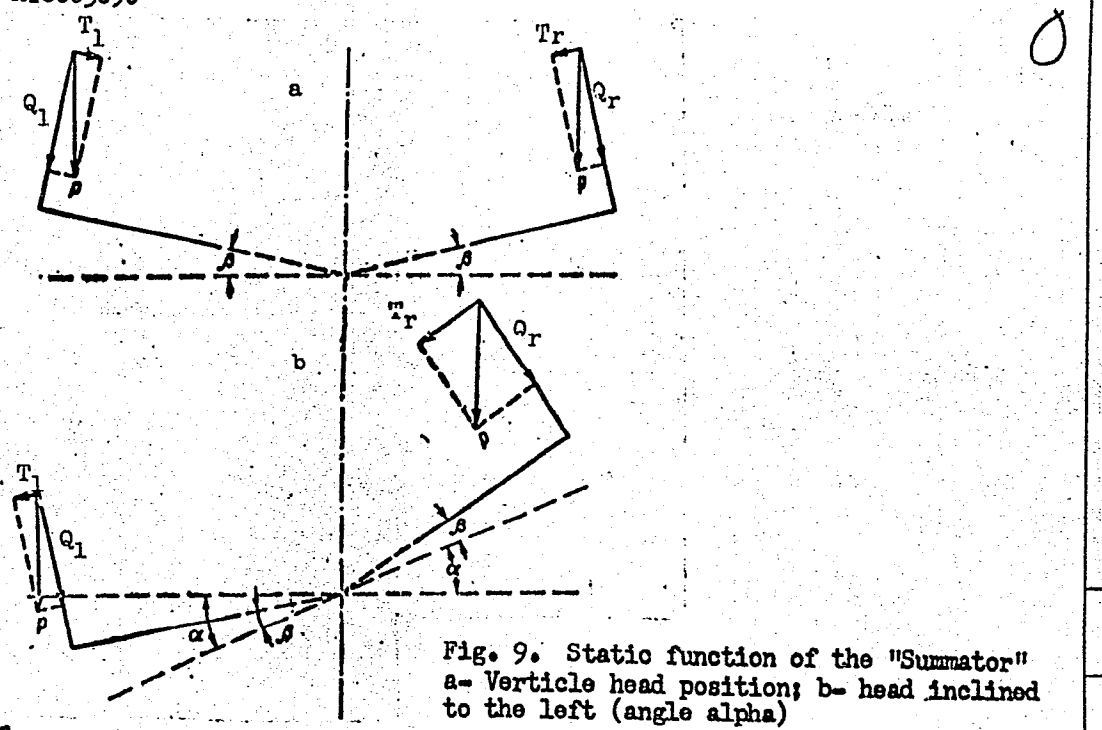

Fig. 9. Static function of the "Summator" a- Verticle head position; b- head inclined to the left (angle alpha)

Card 9/12

ism is moving as a function of changes in otolithic weight. It has been shown that the frequency of sensory impulses increases proportionately with acceleration.

2. Reactions of receptor-neuron systems to acceleration gradually changing with time

Some results of an investigation of the rhythmic activity of 100 neurons in the giant cell nucleus of the reticular formation of a cat during 5-G acceleration are given in the following figures, along with graphic representations of neuronal processes which arise under these conditions.

Figures 4 and 5 are mathematical derivations of the experimental results. It can be seen that the aggregate curve of neuron impulse frequency is sufficiently close to the experimental curve shown in figure 3.

3. Reaction of a receptor-neuron system to acceleration periodically changing with time

The problem of the dynamic nature of "channels" of the otolithic portion of the vestibular analyzer is discussed. It is proposed that a model of a so-called receptor-neuron channel would be a circuit with constant resistance (R), inductance (L), and capacitance (C), successively switched on. The acceleration acting on the organism is likened to the circuit voltage, and the current is analagous to the electrical activity of a receptor-neuron system. Experimental data supported the feasibility of the model shown above.

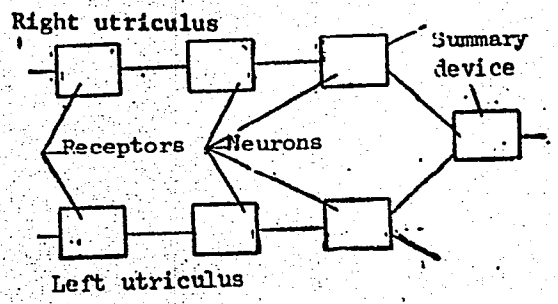

Fig. 10 Principle of the "Summator"

Figure 7 shows the modeled effects of prolonged otolithic stimulation.

4. Some principles of the so-called "summing device"

A diagramatic representation of the so-called summing device which compares the coupled signals from the left and right utriculus and the sacculus is given in Figs. 8, 9, and 10.

The author states that the summing device, working according to the proposed systems, excellently reflects the features of the movements of birds and animals with removed right and left otoliths.

It is concluded that the proposed principles of modeling the otolithic portion of the vestibular apparatus can be used to explain some general features of this important organ. It is hoped that further development in this field will lead to the creation of a much-needed electronic model for more detailed investigations of vestibular function. Orig. art. has: 10 figures and 3 formulas. [ATD PRESS: 4091-F]

SUB CODE: 06 / SUBM DATE: none / ORIG REF: 003

ACC NR: AT7004920 SOURCE CODE: UR/0000/66/000/000/0003/0007

AUTHOR: Gazenko, O. G. (Moscow); Chekhonadskiy, N. A. (Moscow); Razumeyev, A. N. (Moscow); Yegorov, B. B. (Moscow)

ORG: none

TITLE: Some principles of information coding inherent to biological systems

SOURCE: Vses. konf. po avtomatich. kontrol i metodam elektrich. izmereniy, 6th, 1964. Avtomatich. kontrol' i metody elektrich. izmereniy; tr. konf., t. I: Teoriya izmerit. info. sistem (Automatic control and electrical measuring techniques; transactions of the conference, v. 1: Theory of measuring information systems). Novosibirsk, Izd-vo Nauka, 1966, 3-7

TOPIC TAGS: neuron, vestibular function, electromagnetic biologic effect, ~~information~~ coding correlation

ABSTRACT: The results are reported of an experimental study of information coding in some regions of the central nervous system of animals whose organism was subjected to overloads. Activity of the neurons of a giant-cell nucleus of reticular formation was studied; in practice, the activity of a chain comprising a receptor and a few series-connected neurons was observed. A cat was rotated in a centrifuge

Card 1/2

ACC NR: AT7004920

which created a 5-times-normal load in his organism. Pulses of 100 neurons were measured before, during, and after the overload. An inference can be drawn that the receptors of the otolith part of the vestibular apparatus generate electrical pulses of 1—2 msec duration, 1—5 mv height, at a frequency from a fraction of cps to 30 cps. With application of an overload, the frequency increases to 120—130 cps, pulse height remaining constant. It is found that: (1) The output of the receptor-neurons chain is a function of two parameters: degree of overload and time; (2) With gravity variation of 1:4000, the output-frequency limit is 150 cps. Orig. art. has: 5 figures and 7 formulas.

SUB CODE: 06 / SUBM DATE: none / ORIG REF: 004

Card 2/2

AVANESOV, B.A.; CHEKHONINA, N.Ye.

Concerning visceral candidiasis. Sbor.nauch.-prak.rab.Poliklin. im.F.E.Dzerzh. no.2:88-90 '61. (MIRA 16:4)
(LUNGS—DISEASES) (MONILIASIS)

ACC NR: AP6029962 (A) SOURCE CODE: UR/0413/66/000/015/0147/0147

INVENTOR: Gabay, Ye. V.; Dudchenko, V. V.; Chekhonina, Z. A.; Yemel'yanov, I. K.

ORG: none

TITLE: Hydraulic one-way booster. Class 63, No. 184635 [announced by Onega Tractor Plant (Onezhskiy traktornyy zavod)]

SOURCE: Izobret prom obraz tov zn, no. 15, 1966, 147

TOPIC TAGS: clutch, hydraulic equipment, booster design, tracked vehicle

ABSTRACT: An Author Vertificate has been issued for a one-way hydraulic booster to be used primarily for controlling the clutch mechanism of tracked vehicles and

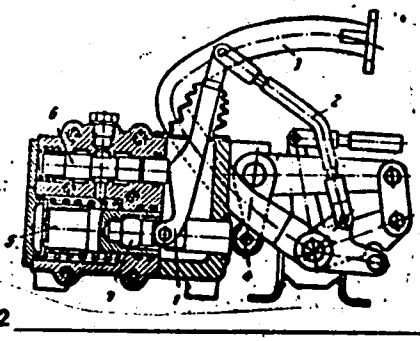

Fig. 1. Hydraulic amplifier

1 - Differential lever; 2 - pull rod; 3 - control element; 4 - drive control lever; 5 - power piston; 6 - slide valve; 7 - push rod.

Card 1/2 UDC: 629.114.2: :621.825.9-82

ACC NR: AP6029962

turning them (see Fig. 1). To increase its operational reliability, a differential lever of the interacting type makes contact at one end of a curved support with the end of a slide valve; the other end is articulately connected inside a channel with a push rod, which interacts with the drive control lever. Orig. art. has: 1 figure.

SUB CODE: 13/ SUBM DATE: 09Dec63/

Card 2/2

15-57-4-4984

Translation from: Referativnyy zhurnal, Geologiya, 1957, Nr 4, p 134 (USSR)

AUTHOR: Chekhov, A.

TITLE: Effect of Portland Cement Admixtures on Properties of Gypsum (Vliyaniye dobavok portlandtsementa na svoystva gipsa)

PERIODICAL: Stroit. materialy, izdeliya i konstruktsii, 1956, Nr 9, pp 32-33

ABSTRACT: The chemical and mineral compositions of a number of portland cements and of structural gypsums were studied to determine the effects of the composition of portland cement on the properties of gypsum used in construction. (See table.) An amount of 5 to 25 percent portland cement was added to the gypsum; 10 to 15 percent should be considered as optimum. Addition of low-alumina (aplitic and belitic) portland

Card 1/4

Effect of Portland Cement Admixtures (Cont.)

cements to the gypsum increases its strength and its resistance to water; it also improves other properties. Addition of alumina and celitic portland cements produces negative results.

S. P. Sh.

15-57-4-4984

Effect of Portland Cement Admixtures (Cont.)

Name of material	Chemical composition, percent						
	SiO_2	Al_2O_3	Fe_2O_3	CaO	MgO	SO_3	Other constituents
Portland cement:							
Aplitic	21.97	4.75	1.77	69.63	0.54	0.98	0.87
Belitic	27.61	3.32	2.63	68.01	0.67	1.70	1.08
Alumina	22.85	6.94	1.95	69.00	0.48	0.35	0.79
Celitic	23.85	1.13	4.68	68.16	0.56	1.32	0.91
Structural Gypsum	1.21	---	---	37.12	0.97	46.42	6.95

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15-57-4-4984

Effect of Portland Cement Admixtures (Cont.)

Mineral composition, percent

C_3S	C_2S	C_3A	C_4AF
82.47	0.71	9.59	5.38
10.28	76.91	4.60	8.02
59.32	19.20	15.60	5.85
55.62	26.18	1.12	14.20
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Card 4/4

CHEKHOV, A.

USSR/Chemical Technology. Chemical Products and their Application. J-12
Glass. Ceramics. Construction Materials.

Abs Jour: Referat Zh.-Kh., No 8, 1957, 27756.

Author : A. Chekhov.
Inst :
Title : Influence of Portland Cement Addition on Properties of Plaster-of-Paris.

Orig Pub: Stroit. materialy, izdeliya i konstruktsii, 1956, No 9, 32-33.

Abstract: The hardening of plaster-of-Paris (PP) is retarded, if Portland cement with a low alumina content (alite, belite cements) was added to casting mixes of PP for constructions; the strength of PP is increased after it has been kept in air, as well as in water up to 6 months; the softening factor rises (about 50%); the weight loss at the storage in water drops (about 40%). The optimum amount of the addition is 10 to 15% of the weight of the

Card : 1/2 -110-

Abs Jour: Referat Zh.-Kh., No 8, 1957, 27756

mix. The positive influence of cement is explained by the decrease of the solubility of dihydrate at the expense of the formation of a similar calcium ion at the hydrolysis of C_3S, as well as by the formation of the little soluble calcium hydrosulfoaluminate. An addition of aluminate cement to PP impairs the properties of plaster-of-Paris castings up to their destruction in 6 to 7 months' time, if they are kept in a humid medium. The negative effect is explained by the interaction of PP with hydroaluminates in the solid phase and the formation of calcium hydrosulfoaluminate at an increase of the volume.

CHEKHOV, A., prepodavatel'

Controlling corrosion of silo walls. Sil'.bud. 7 no.7:24 Jl '57. (MIRA 12:11)

1. Poltavskiy institut inzhenerov sel'skokhozyaystvennogo stroitel'stva.
(Concrete--Corrosion) (Silos)

CHEKHOV, A., inzh.

Preventing corrosion of concrete in silos. Sel' stroi. 13 no.8: 5-6 Ag '58. (MIRA 11:9)
(Corrosion and anticorrosives) (Silos)

SOV/97-59-1-13/18

AUTHOR: Chekhov, A.P., Engineer

TITLE: The Effect of Organic Acids in Silos on Durability of Concrete and Plaster (Vliyaniye organicheskikh kislot silosa na stoykost' betona i rastvora v konstruktsiyakh silosnykh sooruzheniy)

PERIODICAL: Beton i Zhelezobeton, 1959, Nr 1, pp 41-42 (USSR)

ABSTRACT: Poltava Institute of Agricultural Building Engineering (Poltavskiy institut inzhenerov sel'skokhozyaystvennogo stroitel'stva) experimented to find out the effect of organic acids on the strength of concrete and plaster. The investigations were carried out in accordance with the standard method (GOST 4798-49) of V.V. Kind. Test cubes of various concrete mixes and plasters were used. The mineralogical compositions of portland cements, which were reground with 3% gypsum additive, are given in Table 1. Pozzuolana portland cement was prepared from Nikolayev clinker (65%) and volcanic tuff (35%). Slag portland cement was made from the same clinker (50%) and granulated blast furnace slag (50%). Laboratory tests

Card 1/3

The Effect of Organic Acids in Silos on Durability of Concrete and Plaster

were carried out using aqueous solutions of lactic acid and glacial acetic acid containing PH = 3.5, which affect the concrete in silos. Test samples were protected in distilled water. Experiments carried out to find the strengths of test cubes (Table 2) showed that lactic acid and glacial acetic acid and their mixture actively interact with the calcium oxide of the cement components. They form salts of organic acids which are readily soluble in water. This causes the disintegration of the concrete. Fig.1 shows surfaces of concrete affected by lactic acid. The resistance of the concrete against the action of acids depends very little on the type of cement used and its mineralogical composition (see Table 2). Test cubes were found to have lost strength after 3 months in aggressive solutions. Tests on slag concrete showed loss in strength after a year in aggressive solutions. This shows that the speed of concrete "corrosion" depends considerably on the structure of the concrete. It was found necessary to apply a protective coating to the walls of silos. The following types of protective coating were tested: sand/

The Effect of Organic Acids in Silos on Durability of Concrete and Plaster

cement mix in the proportion 1 : 3, 20 mm thick, with (a) untrowelled surface, and (b) application of steel chips; petroleum-bitumen; water-glass solution, and silico-organic compounds soluble in water. Positive results were obtained with samples covered by petroleum-bitumen mix in the proportion 1 : 4. The tests showed that cement and sand plaster can be effectively protected from organic acids by working steel chips into the face, or by the application of petroleum-bitumen (Fig.3). There are 3 figures and 2 tables.

Card 3/3

CHEKHOV, A., prepodavatel'

Attachment for quadrilateral planing machines. Sil' bud. 9 no.8:23 Ag '59. (MIRA 12:12)

1.Poltavskiy institut inzhenerov sel'skokhozyaystvennogo stroitel'stva.

(Planing machines--Attachments)

CHEKHOV, A.P., inzh.

Corrosion of reinforcements in concretes made with granulated slags. Bet. i zhel.-bet. no.10:480-481 O '60. (MIRA 13:10)
(Reinforcing bars—Corrosion)

CHEKHOV, A., kand.tekhn.nauk

Corrosion of the reinforcement of reinforced concrete made with granulated slag. Bud. mat. i konstr. 4 no.2:20-22 Mr-Ap '62. (MIRA 15:9)

(Concrete reinforcement)
(Corrosion and anticorrosives)
(Slag)

REZNICHENKO, Pavel Trofimovich, dots., kand. tekhn. nauk; CHEKHOV, Anatoliy Petrovich, dots., kand. tekhn. nauk; DYAKOV, A.N., red.

[Chemicalization of building] Khimizatsiia stroitel'stva. Dnepropetrovsk,"Fromin'" 1965. 46 p. (MIRA 18:12)

CHEKHOV, A.P.

Plastics in building in the German Democratic Republic. Stroi. mat. 11 no.6:39-40 Je '65. (MIRA 18:7)

CHEKHOV, A., prepodavatel'

Making local binding materials. Sel'.stroi. 15 no.9:21 S '60. (MIRA 13:9)

1. Poltavskiy institut inzhenerov sel'skokhozyaystvennogo stroitel'stva.
(Zabolottsy District--Binding materials)

CHEKHOV, I. (g.Voronezh).

Parts made of compressed wood. NTO no.6:41 Je '59.
(MIRA 12:9)

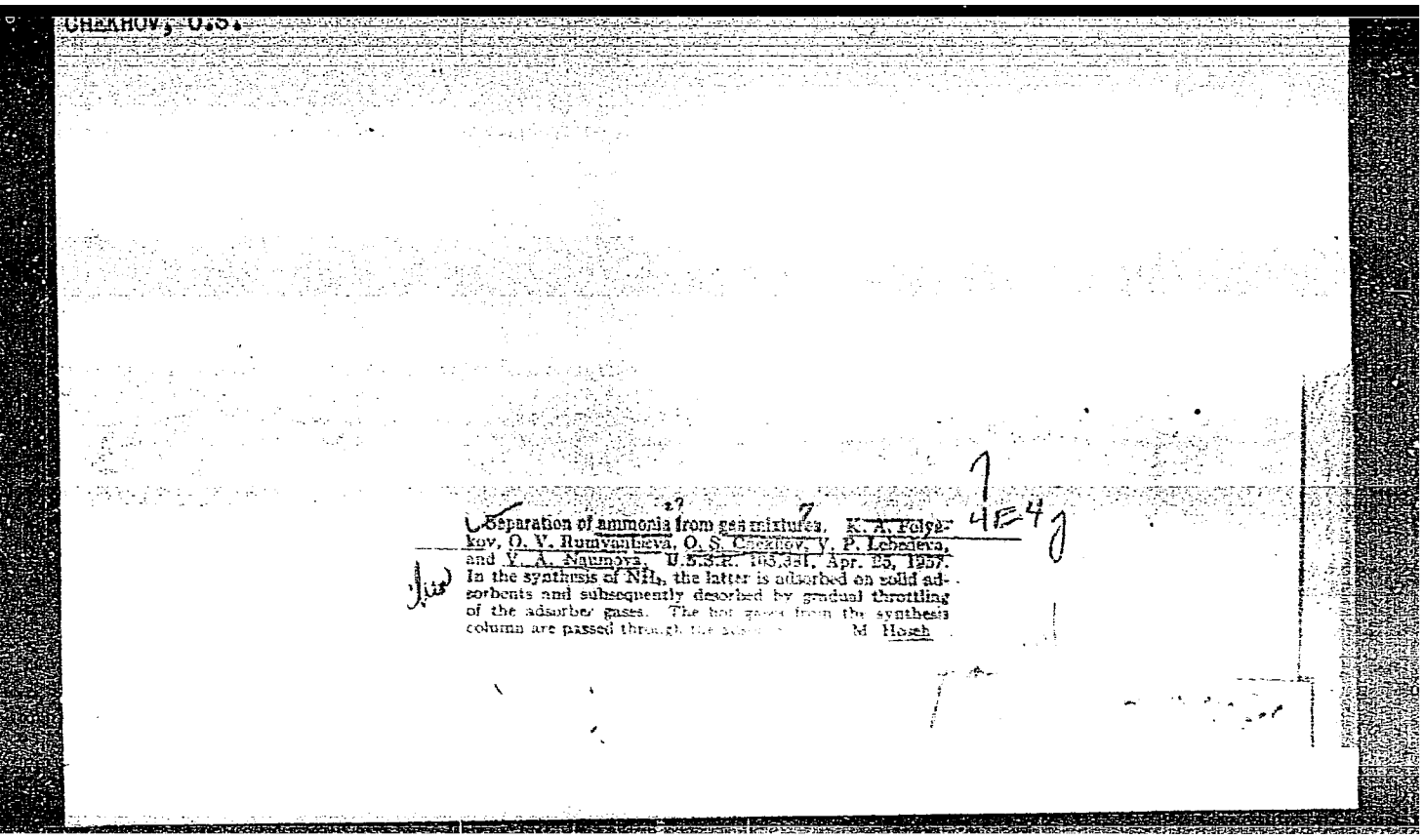
(Wood, Compressed)

EPPEL', D.; CHEKHOV, I.

"University of culture" for builders. Stroitel' no.12:21 D '59. (MIRA 13:3)
(Leningrad--Adult education)

CHEKHOV, I., kapitan

Beyond the limit of fear. Starsh.-serzh. no.5:8 My '63.
(MIRA 16:10)



CHEKHOV, O.S.

Separation of ammonia from gas mixtures. K. A. Folyarkov, O. V. Rumyantseva, O. S. Chekhov, V. P. Lebedeva, and V. A. Naumova. U.S.S.R. 105,331, Apr. 25, 1957. In the synthesis of NH_3, the latter is adsorbed on solid adsorbents and subsequently desorbed by gradual throttling of the adsorbed gases. The hot gases from the synthesis column are passed through the [illegible] M Hosch

SOV/124-58-10-11295

Translation from: Referativnyy zhurnal, Mekhanika, 1958, Nr 10, p 85 (USSR)

AUTHORS: ~~Chekhov,~~ O.S., Matrozov, V.I.

TITLE: Investigation of Mass Exchange on a Disperser-hood Plate (Issledovaniye massoobmena na kolpachkovykh tarelkakh)

PERIODICAL: Tr. Mosk. in-ta khim. mashinostr., 1957, Vol 13, pp 78-96

ABSTRACT: Bibliographic entry

Card 1/1

CHEKHOV, O.S.

PLANOVSKIY, A.N.; MATROZOV, V.I.; CHEKHOV, O.S.; SOLOMAKHA, G.P.

Relationship between mass transfer and liquid resistance on bubble-cap and sieve plates. Khim. i tekh. topl. i masel 3 no.3:30-33 Mr '58. (MIRA 11:3)

1.Moskovskiy institut khimicheskogo mashinostroyeniya.
(Plate towers)

CHEKHOV, O. S., Candidate Tech Sci (diss) -- "Mass-exchange and hydraulic resistance of dome plates". Moscow, 1959. 19 pp (Min Higher Educ USSR, Moscow Inst of Chem Machinebuilding), 150 copies (KL, No 24, 1959, 143)

RUMYANTSEV, O.V., kand.tekhn.nauk; CHEKHOV, O.S., kand.tekhn.nauk

Accumulation of inert gas constituents in the ammonia synthesis cycle. Khim.prom. no.7:637-639 O-N '59. (MIRA 13:5)

1. Moskovskiy institut khimicheskogo mashinostroyeniya.
(Ammonia) (Gases)

TAMOVSKIY, A.N., doktor tekhn.nauk prof.; ARTAMONOV, D.S., insh.; CHEKHOV, O.S., kand.tekhn.nauk

Mass transfer in the liquid phase in bubble plate columns. Khim.mash. no.1:13-16 Ja '60. (MIRA 13:5)
(Plate towers) (Mass transfer)

PIANOVSKIY, A.N., CHEKHOV, O.S., ARTAMONOV, D.S.

Hydraulic resistance of plates of different design.
Khim.prom. 2:151-152 My '60. (MIRA.13:7)
(Plate towers)

SEMENOV, P.A., doktor tekhn.nauk; TUMANOV, Yu.V.; CHEKHOV, O.S., kand.tekhn. nauk

Jetless Venturi absorber for the absorption of ammonia from coke-oven gas. Koks i khim. no.8:34-37 '60. (MIRA 13:8)

1. Moskovskiy institut khimicheskogo mashinostroyeniya.
(Ammonia) (Coke-oven gas) (Absorption)

KASATKIN, A.G.; PLANOVSKIY, A.N.; CHEKHOV, O.S.; GERTSIK, S., red.; KASHIRIN, A., tekhn. red.

[Calculation of plate distillation and absorption apparatus] Raschet tarel'chatykh rektifikatsionnykh i absorbtsionnykh apparatov. Moskva, Gos. izd-vo standartov, 1961. 80 p. (MIRA 14:8)

(Plate towers)

S/064/61/000/007/004/005
B124/B206

AUTHORS: Chekhov, O. S., Anokhin, V. N., Shekun, B. N., Khiterer, R.Z.

TITLE: Investigation of hydrodynamic processes in a pseudo-diluted solid-particle layer under high pressure

PERIODICAL: Khimicheskaya promyshlennost', no. 7, 1961, 48 - 50

TEXT: The hydrodynamics of pseudo-diluted solid-particle layers were investigated at 1-300 kg/cm^2 and 25-30°C with a stoichiometric gas mixture used for the synthesis of ammonia. Coke particles of good electrical conductivity and metallic needle- and lamella-shaped filings were used as solid phase. The critical rate velocity of the gas mixture and the height of the pseudo-diluted solid-particle layer during the process were determined. The gas mixture was purified of steam, oil droplets and other impurities, and ducted into a vertical, cylindrical high-pressure column with an inner diameter of 25 mm which contained the solid-particle layer. The mixture was then throttled to atmospheric pressure and its consumption was measured with a rheometer. The transition of the solid-particle layer into the pseudo-diluted state, which corresponded to the critical gas

velocity, was brought about by closing the circuit. Above the solid-particle layer there was an electric contact which touched the layer after the beginning of the expansion and thus closed the circuit. The second electric contact was connected to the housing of the high-pressure column. For the determination of the height of the pseudo-diluted solid-particle layers, the distance of the upper surface of the stationary layer from the electric contact in the high-pressure column was varied. The determination results obtained during opening were practically equal to those obtained during closing of the circuit. The experimental results obtained for the critical gas velocities were treated according to the method proposed in Ref. 1 (A. I. Rychkov, N. A. Shakhova, IFZh, No. 9, 92 (1959)) for determining the critical gas velocities at various temperatures and atmospheric pressure (Ref. 2: O. M. Todes, A. K. Bondareva, Khim. nauka i prom., 2, No. 2 (1957)). First, the critical gas velocity ω_{cr} (in m/sec) at atmospheric pressure was determined experimentally, this value being a function of the mean particle diameter d_{mean} and the density of the particles, under absolutely equal conditions. From the known value ω_{cr}, the equivalent diameter d_e of the pores in the layer (in m) was calculated

from the equation $d_e^2 - (0.8\omega_{cr}^2 \cdot \gamma_g \cdot l/\Delta P \cdot \varepsilon_o^2 g)\, d_e - (73\nu\omega_{cr} \cdot \gamma_g \cdot l/\Delta P \varepsilon_o g) = 0$ (1), where ω_{cr} is the gas velocity related to the total column diameter, γ_g the density of the gas, l the height of the stationary solid-particle layer, ΔP the pressure difference, ε_o the porosity of the stationary solid-particle layer, g the gravitational acceleration and ν the kinematic viscosity of the gas. The critical velocity of the gas at any pressure was determined from the equivalent diameter by the following equations: 1) for laminar conditions at $Re < 15$ and $Ar(1-\varepsilon_o) < 1100$: $Re = 0.0137 Ar(1-\varepsilon_o)$ (2); 2) for transition conditions at $15 < Re < 150$ and $1100 < Ar(1-\varepsilon_o) < 28.2 \cdot 10^3$: $Re = 0.101 \left[Ar(1-\varepsilon_o)\right]^{0.714}$ (3); 3) for turbulent conditions at $150 < Re < 1000$ and $28.2 \cdot 10^3 < Ar(1-\varepsilon_o) < 83 \cdot 10^4$: $Re = 0.512 \left[Ar(1-\varepsilon_o)\right]^{0.556}$ (4); under the given conditions, Reynolds' criterion is $Re = \omega_{cr} \cdot d_e/\nu \cdot \varepsilon_o$ (5), and Archimedes' criterion $Ar = (g d_e^3/\nu^2) \cdot \left[(\gamma_p - \gamma_g)/\gamma_g\right]$ (6), where γ_p denotes the apparent density of the solid particles. Fig. 1 shows the

Card 3/9

experimental results obtained with coke and bronze particles, in the coordinates pressure - critical velocity; likewise, the curves of Eqs. (2), (3) and (4) are recorded with parameters corresponding to experimental conditions. Fig. 2 shows the results obtained in experiments with coke, bronze and aluminum particles, in the coordinates Ar - Re. Eqs. (7) and (8): $Re' = Ar'/\left\{150\left[(1-\varepsilon_0)/\varepsilon_0^3\right] + \sqrt{(1.75/\varepsilon_0^3)Ar'}\right\}$ (7) or $Ar' = 150\left[(1-\varepsilon_0)/\varepsilon_0^3\right] Re' + 1.75\,(1/\varepsilon_0^3)(Re')^2$ (8), where $Re' = (\omega_{cr} d/\nu)$ and $Ar' = (gd^3/\nu^2)\left[(\gamma_p-\gamma_g)/\gamma_g\right]$, allow the calculation of the pseudo-dilution rate, accurate to 20%. Fig. 3 shows the experimental data for coke particles with a mean diameter of 1.5 mm at various pressures, plotted in the coordinates gas velocity W - relative height of the pseudo-diluted layer $H_{rel} = H/H_0$ (H is the height of the pseudo-diluted layer and H_0 that of the stationary layer), and Fig. 4 the results obtained in experiments with coke particles of 0.24 and 0.83 mm diameter plotted in the logarithmic coordinates Ar' - Re'. The results for the relative height of the pseudo-diluted layers which determine their porosity, may be calculated with an accuracy of 10% from the equation (see Ref. 3: V. D. Goroshko, R. B. Rozenbaum,

Investigation of...

S/064/61/000/007/004/005
B124/B206

O. M. Todes, Izv. vyssh. uch. zav., Neft' Gaz, No. 1 (1958))

$\varepsilon = \left[18Re' + 0.36(Re')^2\right]^{0.21}/Ar'$ (9). The gas velocity at constant degree of expansion of the pseudo-diluted layer is proportional to the critical velocity at $Ar' \geq 10^4$, which corresponds to the turbulent range. There are 4 figures and 3 Soviet-bloc references.

Card 5/9

CHERNOV, O.S.; ANOKHIN, V.N.; [illegible], B.N.; KNIZNER, R.S.

Hydrodynamic processes in a fluidized bed of solid particles under high pressure. Khim. prom. no.7:492-494 Jl '61. (MIRA 14:7)

(Fluidization)

ANOKHIN, V.N.; MUKHLENOV, I.P.; TRABER, D.G.; CHEKHOV, O.S.; SHEKUN, B.N.; KHITERER, R.Z.

Synthesis of ammonia in a fluid-bed catalyst. Zhur.prikl.khim. 35 no.1:37-42 Ja '62. (MIRA 15:1)
(Ammonia) (Catalysis)

CHEKHOV, O.S.; KHITERER, R.Z.

Certain problems involved in the synthesis of ammonia in a fluid-bed reactor. Khim.prom. no.4:277-281 Ap '62. (MIRA 15:5)

1. Moskovskiy institut khimicheskogo mashinostroyeniya.
(Ammonia) (Fluidization)

DANILYCHEV, I.A.; PLANOVSKIY, A.N.; CHEKHOV, O.S.

Study of mixing on sieve trays and methodology for the design of tray mass exchange apparatus. Khim. prom. no.6:461-465 Je '64. (MIRA 18:7)

1. Moskovskiy institut khimicheskogo mashinostroyeniya.

BELOZEROV, P.A.; PLANOVSKIY, A.N.; CHEKHOV, O.S.

Study of the spray hydrodynamics in a spray plate column at low pressures of liquids in a cross-flow of gas. Khim. prom. 40 no.10:733-736 O '64. (MIRA 18:3)

CHEKHOV, O.S.; PLANOVSKIY, A.N.; SOKOLINSKIY, Yu.A.

Accounting for liquid mixing in the calculation of mass exchange plate columns. Khim. prom. 40 no.10:768-772 O '64.
(MIRA 18:3)

AKOPYAN, L.A.; VARYGIN, N.N.; GUTAREV, V.V.; ZYKOV, D.D.; KARAVAYEV, N.M.; KONDUKOV, N.B.; LASTOVTSEV, A.M.; MAKAROV, Yu.I.; MAZUROV, D.Ya.; MARTYUSHIN, I.G.; MASLOVSKIY, M.F.; NIKOLAYEV, P.I.; PLANOVSKIY, A.N.; RYCHKOV, A.I. [deceased]; CHEKHOV, O.S.; KHVAL'NOV, A.M.; SHAKHOVA, N.A.

Theory and practice of heterogeneous processes in a fluidized bed. Trudy MIKHM 26:3-22 '64. (MIRA 18:5)

DANILYCHEV, I.A.; PLANOVSKIY, A.N.; CHEKHOV, O.S.

Studying mass transfer in the liquid phase on sieve plates taking the degree of longitudinal mixing into account. Khim. prom. 41 no.10:766-769 O '65. (MIRA 18:11)

L 31153-66 ENT(d)/ENT(m)/EWP(w)/EWP(v)/EWP(k)/EWA(h)/ETC(m)-6 IJP(c)
ACC NR: AP6002853 WW/EM SOURCE CODE: UR/0021/65/000/012/1579/1582

AUTHOR: Pryvarnikov, A. K.--Privarnikov, A. K.; Chekhov, V. M.--Chekhov, V. N.

ORG: Dnepropetrovsk State University (Dnipropetrovs'kyy derzhavnyy universytet)

TITLE: Stress concentration around a circular hole in a cylindrical shell

SOURCE: AN UkrSSR. Dopovidi, no. 12, 1965, 1579-1582

TOPIC TAGS: cylindrical shell, hole weakened cylindrical shell, stress concentration

ABSTRACT: The stress distribution around a hole in a circular cylindrical shell has been investigated many times, mostly under the assumption that the geometric shell parameter $r(Rh)^{-1/2} << 1$ (r, R, and h- are radii of the hole, shell, and the shell thickness, respectively). Now, an exact (from the engineering point of view) method is proposed for solving the differential equations of flexure of a cylindrical shell weakened by a circular hole without the limiting assumption that the parameter $r(Rh)^{-1/2}$ is small. The unknown stress function (of a complex variable) which describes the disturbance of the state of stress in an intact plain shell caused by the presence of a hole is sought in the form of a trigonometric series with complex constants and Hankel function. A method is outlined for obtaining an infinite system of linear algebraic equations in terms of complex constants by expanding the boundary conditions at the edge of the hole in Fourier series and the final expression describing the stress concentration around the hole. By using an electronic digital

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ACC NR: AP6002853

computer, two problems concerning hole-weakened shells were solved: 1) the shell is subjected to longitudinal tension, the edge of the hole is free of external loads; and 2) the shell is under uniform internal pressure, the hole being covered by a cover which transmits only the shear forces. The stress-concentration factors for both problems are given in tables for $r(Rh)^{-1/2}$ values from 0.5 to 3.0, and are compared with factors obtained by means of the energy method. Orig. art. has: 5 formulas and 2 tables. [VK]

SUB CODE: 20/ SUBM DATE: 07Dec64/ ORIG REF: 006/ ATD PRESS: 4198

Card 2/2

SEREBRENITSKIY, P.P.; CHEKHOV, V.N.

Semiautomatic machine for gluing and drying tapes. Biul.tekh.-ekon.inform.Gos.nauch.-issl.inst.nauch.i tekh.inform. no.5:57-58 '62. (MIRA 15:7)

(Gluing--Equipment and supplies)

TRENIN, S.I.; CHEKHOV, V.N.; SHEVLYAKOV, Yu.A.; SHEVCHENKO, V.P. (Dnepropetrovsk)

"General solution of the equations of shallow shells and some estimates of the bending theory"

Report presented at the 2nd All-Union Congress on Theoretical and Applied Mechanics, Moscow 29 Jan - 5 Feb 64.

SEREBRENITSKIY, Pavel Pavlovich; CHEKHOV, Vladimir Nikolayevich; DOROFEYEVA, N.I., red.

[Drying of saturated winding assembly units using high-frequency currents] Sushka propitannykh obmotochnykh uzlov tokami vysokoi chastoty. Leningrad, 1964. 20 p.
(MIRA 17:11)

SHEVLYAKOV, Yu.A. (Dnepropetrovsk); CHEKHOV, V.N. (Dnepropetrovsk)

Approximate solutions of the axisymmetric deformation of a spherical shell. Prikl. mekh. 1 no.4:12-18 '65.

(MIRA 18:6)

1. Dnepropetrovskiy gosudarstvennyy universitet.

SEREBRENITSKIY, P.P.; CHEKHOV, V.N.

Semiautomatic unit for thermal oxide coating of wire.
Priborostroenie no.10:13-14 O '64.
(MIRA 17:11)

SHEVLYAKOV, Yu.A. (Dnepropetrovsk); CHEKHOV, V.N. (Dnepropetrovsk)

Coefficients of the influence of a spherical shell. Prikl.mekh. 1 no.7:37-44 '65. (MIRA 18:8)

1. Dnepropetrovskiy gosudarstvennyy universitet.

SEREBRENITSKIY, Pavel Pavlovich; CHEKHOV, Vladimir Nikolayevich; SHNYRIKOV, L.Z., red.

[Computing and control devices for winding machines] Schetno-komandnye ustroistva k namotochnym stanakam. Leningrad, 1965. 19 p. (MIRA 18:5)

SEREBRENITSKIY, Pavel Pavlovich; CHEKHOV, Vladimir Nikolayevich; TKALIN, I.M., nauchn. red.

[Mechanization and automation of winding operations in the manufacture of electrical instruments] Mekhanizatsiia i avtomatizatsiia namotochnykh rabot v elektropriborostroenii. Moskva, Energiia, 1965. 140 p. (MIRA 18:10)

PRIVARNIKOV, A.K. [Pryvarnikov, A.K.]; CHEKHOV, V.N. [Chekhov, V.M.]

Stress concentration around a circular hole in a cylindrical shell. Dop. AN URSR no.12:1579-1582 '65.

(MIRA 19:1)

1. Dnepropetrovskiy gosudarstvennyy universitet. Submitted December 7, 1964.